

Letter from Prof. V. Krutov, dated 25 May 1975 to US scientist

STATOTHR

Dear [REDACTED] :

On the 12th of April 1975 we received a letter from you. In this letter you indicated your interest in the course of fulfillment of the calendar plan or the second state of research in the topic "Training and Utilization of Scientific and Engineering Technical Cadres."

Permit me to inform you that we have sent to the American side the following materials: course plans and programs for the specialties -- physics, biology and civil construction, as well as tables completed with statistical materials for one year. STATOTHR

During the period of his visit from 5 - 24 April 1975, [REDACTED]

the expert from the US, had a fruitful exchange of opinions on questions related to the second state of research on the topic "Training and Utilization of Scientific and Engineering Technical Cadres." The Soviet side gave to Dr. Feshback some additional materials:

1. List of specialties and specializations of higher educational institutions of the USSR;
2. List of specialties of higher educational institutions of the USSR given in correspondence studies;
3. Nomenclature of specialties for the training of scientific cadres in graduate work in the USSR;
4. List of specialties of technical schools /specialized secondary educational institutions/ of the USSR.

In his turn [REDACTED] gave the members of the Soviet side of the working subgroup the following materials:

1. Scientific classification of course programs of higher schools in the US;
2. Dictionary of occupations in the US.

These materials will help us in our further work in the comparison of the level of training of specialists of higher and specialized secondary education in particular in the specialties stipulated in the protocol -- biology, physics and civil engineering.

Having studied the material sent to us we regretfully inform you that until now we do not have course plans and programs on the civil engineering specialty as well as tables on the training of scientific and engineering-technical cadres/completed with statistical materials for one year. In addition for more profound study of the level of training for the above-indicated specialties it would be desirable to obtain from the American side more detailed information on physics. For example, it would be desirable to obtain information on the number of course hours for each subject, the distribution of course and auditing hours by semester and year of study. In addition it would be desirable to have explanations to tables number 11, 12 and diagram 4.

We would also like to obtain more detailed information on the content of each course of the study program on physics and biology and the list of course literature for biology. STATOTHR

During the period of his visit [redacted] raised a proposal about the expediency (utility) of an exchange of typical dissertations (Candidate in the USSR and doctoral in the US) for the indicated specialties: physics, biology and civil engineering. We would like to know your opinion on this question.

The Soviet side has prepared a list of topics for future joint research of the working subgroup on "Training and Utilization of Scientific and Engineering Technical Cadres." It will be forwarded in the near future.

At the present time the Soviet/subgroup is completing work on the outline of a draft report, and in the near future it will be forwarded to the American side.

We hope that the American side also will send an outline of a draft report in the near future keeping in mind that a discussion and agreement on the materials exchanged by each side will take place at a joint session in October 1975.

With regards and best wishes,

Letter from Dr. V. Krutov dated 25 March 1975

Dear [REDACTED] : STATOTHR

We would like to inform you that the Soviet section of the subgroup held a meeting and worked out the necessary measures for carrying out the calendar plan of the second stage on the subject of "Training and Utilization of Scientific and Technical Manpower." In accordance with the calendar plan we are sending you lists of courses and programs of institutions of higher learning for the following majors: Industrial and civil construction, physics and also biology for the reason that the nomenclatures of university majors do not include botany; it is represented in the field of biology by specialized courses. We hope that the American side will also send the Soviet side lists of courses and programs for the major in biology. We are at this time sending you the following tables containing statistical data for one year with respective explanations of the method of putting them together: Table 1 DISTRIBUTION OF INSTITUTIONS OF HIGHER LEARNING GROUPED BY FIELDS OF STUDY; Table 2 NUMBERS OF STUDENTS IN INSTITUTIONS OF HIGHER LEARNING GROUPED BY TYPES OF SCHEDULES; Table 3 ADMISSION TO INSTITUTIONS OF HIGHER LEARNING IN SPECIALIZED SECONDARY SCHOOLS BY FIELDS OF STUDY; Table 4 NUMBERS OF STUDENTS IN INSTITUTIONS OF HIGHER LEARNING GROUPED BY SPECIALIZATION; Table 5 SPECIALISTS GRADUATING FROM INSTITUTIONS OF HIGHER LEARNING GROUPED BY SPECIALIZATION; Table 6 WOMEN STUDENTS IN INSTITUTIONS OF HIGHER LEARNING; Table 7 DISTRIBUTION OF STUDENTS AT INSTITUTIONS OF HIGHER LEARNING BY NATIONALITY OF UNION AND AUTONOMOUS REPUBLICS AND AUTONOMOUS TERRITORIES; Table 8 DISTRIBUTION OF SPECIALIZED SECONDARY SCHOOLS GROUPED BY FIELDS OF STUDY; Table 9 NUMBERS OF STUDENTS AT SPECIALIZED SECONDARY SCHOOLS GROUPED BY TYPES OF SCHEDULES; Table 10 NUMBERS OF STUDENTS AT SPECIALIZED SECONDARY SCHOOLS GROUPED BY SPECIALIZATION; Table 11 SPECIALISTS GRADUATING FROM SPECIALIZED SECONDARY SCHOOLS GROUPED BY FIELDS OF SPECIALIZATION; Table 12 WOMEN STUDENTS IN SPECIALIZED SECONDARY SCHOOLS;

Table 13 DISTRIBUTION OF STUDENTS IN SPECIALIZED SECONDARY SCHOOLS  
BY NATIONALITIES OF UNION AND AUTONOMOUS REPUBLICS AND TERRITORIES;

1 Table 14 NUMBERS OF STUDENTS STUDYING IN AND GRADUATING FROM  
2 GRADUATE SCHOOLS; Table 15 DISTRIBUTION OF GRADUATE STUDENTS BY  
3 FIELDS OF STUDY; Table 16 DISTRIBUTION OF RESEARCH AND TEACHING  
4 STAFF BY FIELDS OF STUDY; Table 17 AVERAGE NUMBERS OF BLUE AND  
5 WHITE COLLAR WORKERS, NUMBERS OF SPECIALISTS WITH HIGHER AND  
6 SPECIALIZED SECONDARY EDUCATION GROUPED BY BRANCHES OF THE NATIONAL  
7 ECONOMY.

9 At the present time our subgroup is working on an outline of a  
10 paper and a list of questions on the basic trends of future scientific  
11 research in the USSR and the US on the subject of "Training and  
12 Utilization of Scientific and Technical Manpower," which will be  
13 mailed to you in the next letter. In accordance with the established  
14 understanding and short visits by experts we are herewith informing  
15 you of our agreement to receive [REDACTED] beginning  
16 April 5, 1975. [REDACTED] STATOTHR

18 With my best wishes to you and your colleagues,

19 /s/ V.I. Krutov,  
20 Chairman, Scientific and Technical  
21 Council of the Ministry of Higher  
22 and Specialized Secondary Education  
23 of the USSR, Professor

Instructions for Tables Presented by the Soviet side.

Table 1: DISTRIBUTION OF INSTITUTIONS OF HIGHER LEARNING GROUPED BY SPECIALIZATION. Table 1 and the following tables provide data on state institutions of higher learning in the USSR. Institutions of higher learning include universities, academies (teaching), specialized institutes of various fields of knowledge (engineering, agriculture, medicine, art, education, economics) conservatories, industrial plants, technological institutions of higher learning and other institutions of learning which provide higher education.

Table 2: NUMBERS OF STUDENTS IN INSTITUTIONS OF HIGHER LEARNING GROUPED BY TYPES OF SCHEDULES. In the USSR specialists are trained in institutions of higher learning a. without being employed while studying-- daytime courses; b. while employed -- evening courses, correspondence courses, in training at a plant, vtuz (institution of higher technical learning). At daytime and evening institutions of higher learning (university departments, divisions) the course system is used: the student is required to attend courses which, if offered in the evening, usually take place four times a week for four hours a night. In education by correspondence the subject-course system is used: the student is required to attend the institution of higher learning only during the laboratory and examination sessions in order to carry out the laboratory assignments; to attend the essential lectures; and to take oral and written examinations. Training in plant-vtuz programs set up at large industrial plants equipped with modern machinery is an intermediate type of education between full-time employment and full-time studying. In such programs training is combined with productive labor in all courses (with the exception of time allotted for diploma projects when the students are merely taking courses); the topics dealt with in laboratory research in various courses, papers and diploma projects are, as usual, related to the fields of industry. Relations between the time spent on the plant and the time spent attending courses

is one-to-one. The term of study at institutions of higher learning is four to six years (in most cases five years). The period of time necessary for higher education obtained as a result of evening and correspondence courses is six to 12 months longer than daytime courses in corresponding fields of learning. In plant-vtuz programs students are distributed by types of schedules, depending on the type of training provided for the future specialists (daytime or evening courses).

Table 3: ADMISSION TO INSTITUTIONS OF HIGHER LEARNING IN SPECIALIZED

SECONDARY SCHOOLS BY TYPES OF SCHEDULES. All citizens of the USSR with a completed high school education have the right to be admitted to institutions of higher learning. Full time training (without being employed) is open to individuals up to 35 years of age; part-time courses (while employed) are open to anyone. Vocational schools in the USSR are open to citizens who have eight years of high school and in some cases to citizens with a completed general high school education. Daytime courses are open to individuals up to 30 years of age; evening correspondence courses are unlimited.<sup>1</sup> In specialized secondary schools students in parentheses the author explains the proper Russian term for "specialized secondary school student" are trained in technology, agronomy, and provided general education which gives the students the right to enter an institution of higher learning equal to those who have completed general high schools.

Table 3 contains information on the admission of students to institutions of higher learning and specialized secondary schools in the USSR.<sup>2</sup> Individuals admitted to preparatory courses at institutions of higher learning are not included in the number of regular students.

<sup>1</sup>Explanation on the types of schedules in vocational schools is provided in the instructions to table 9.

<sup>2</sup>Specialized secondary schools are explained in the instructions to table 8.

1       Table 4: NUMBERS OF STUDENTS IN INSTITUTIONS OF HIGHER LEARNING  
2       GROUPED BY SPECIALIZATION. The number of students in institutions  
3       of higher learning grouped by specialization is quoted as of October  
4       first each year. The naming of groups by specialization has been  
5       according to the official USSR list of specialties approved in the  
6       appropriate manner.

7       Table 5: SPECIALISTS GRADUATING FROM INSTITUTIONS OF HIGHER  
8       LEARNING GROUPED BY SPECIALIZATION. This table contains information  
9       on individuals who have completed the full course of theoretical  
10      studies in an institution of higher learning and were awarded a  
11      diploma. The names of the groups of specialists indicated are in  
12      complete agreement with the official USSR list of specialties.

13      Table 6: WOMEN STUDENTS IN INSTITUTIONS OF HIGHER LEARNING. This  
14      table provides data on specific numbers of women among the students  
15      at institutions of higher learning in the USSR grouped by fields of  
16      study.

17      Table 7: DISTRIBUTION OF STUDENTS IN INSTITUTIONS OF HIGHER  
18      LEARNING BY NATIONALITY OF UNION AND AUTONOMOUS REPUBLICS AND OF  
19      AUTONOMOUS REGIONS. In grouping students by nationalities all  
20      students of institutions of higher learning in the USSR are included.

21      Table 8: DISTRIBUTION OF SPECIALIZED SECONDARY SCHOOLS BY GROUPS  
22      OF SPECIALIZATION. Tables 3, 8 and the following tables provide  
23      data on the state specialized secondary schools. The state  
24      technical and other specialized secondary schools are divided into  
25      two basic groups -- the technicum (trade, construction, transporta-  
26      tion, communication, agricultural, economic and other) and uchilische  
27      (place of learning) (educational, medical, musical, art and drama  
28      schools) some specialized secondary schools are traditionally called  
29      schools (for example, cultural general education schools, schools  
30      for trainers and others); some marine and river navigation technical  
31      secondary schools maintain their traditional names of uchilishche

(as for example the Leningrad Maritime Uchilishche, the Astrakhan River Navigation Uchilishche).

Table 9: NUMBERS OF STUDENTS IN SPECIALIZED SECONDARY SCHOOLS GROUPED BY TYPES OF SCHEDULES. In the USSR courses in specialized secondary schools are offered in the daytime (for those who are not employed while studying), in the evening and by correspondence (for those who are employed while studying). In the daytime and night-time specialized secondary schools (divisions) the course (?) system is used in training: attendance of all courses is required; night courses are usually offered three to four times a week for four hours at a time. In correspondence courses the students are trained according to the subject course system: students are required to attend the laboratory and examination sessions at the technicum or uchilishche in order to complete all laboratory assignments and to take their written and oral examinations. Individuals who have finished eight grades are required to attend specialized secondary schools for three to four years if they are taking daytime courses, and graduates from general high schools -- 1½ to 3 years, in most cases 2½ years. Evening or correspondence courses in specialized secondary schools take six to eight months longer than for daytime courses in corresponding fields of study.

Table 10: THE NUMBERS OF STUDENTS IN SPECIALIZED SECONDARY SCHOOLS GROUPED BY SPECIALIZATION. The numbers of students in specialized secondary schools are given as of October 1st of each year. The names of the groups of specialties indicated are in complete agreement with the official USSR list of specialties.

Table 11: STUDENTS GRADUATING FROM SPECIALIZED SECONDARY SCHOOLS GROUPED BY SPECIALIZATION. This table contains information on individuals who have completed the full course of theoretical studies at a specialized secondary school and were awarded a diploma

of an established form. The names of the groups of specialties indicated are in complete agreement with the official USSR list of specialties.

Table 12: WOMEN STUDENTS IN SPECIALIZED SECONDARY SCHOOLS. This table provides data on specific numbers of women among the students in vocational schools in the USSR grouped by specialization.

Table 13: DISTRIBUTION OF STUDENTS IN INSTITUTIONS OF HIGHER LEARNING BY NATIONALITY OF UNION AND AUTONOMOUS REPUBLICS AND AUTONOMOUS REGIONS. The data on the grouping of students by nationality includes students attending specialized vocational/schools of the USSR.

Table 14: NUMBERS OF STUDENTS ATTENDING AND GRADUATING FROM GRADUATE SCHOOLS. Graduate education in the USSR is the basic way to train scientists and university faculty; graduate education is usually completed after the defense of the dissertation for the degree Candidate of Sciences. A graduate student is an individual who is preparing for teaching or research work at an institution of higher learning or at a scientific and research institution.

Graduate work is possible in institutions of higher learning and scientific and research institutions which are able to provide adequately qualified guidance and modern experimental facilities.

There are the so-called in presentia graduate courses for those who are not employed while studying and are not older than 35 years of age (studies lasting for three years) and the in absentia graduate/courses for those who are employed and are not older than 45 years of age (studies lasting for four years). Competitive entrance examinations for admission to graduate work are open to individuals who have completed higher education, who have demonstrated an aptitude for research work; to individuals from among the specialists in the field of national economy with at least two years of practical experience in a chosen field; and to young specialists immediately after

graduation from an institution of higher learning upon recommendation of the board (of the department) of an institution of higher learning. Individuals aspiring to graduate work are required to present their published research work, information on their discoveries on experimental construction work (in the absence of the latter -- a paper on the chosen specialization), have to consult with the proposed academic adviser and subsequently take examinations in the area of specialization, history of the CPSU and a foreign language. The graduate student works under the guidance of an academic adviser (as a rule a doctor of sciences, a professor) according to an individually devised plan, studies his selected area of specialization, acquires the skills of scientific research experimental work and scientific methodology, takes courses required for a Candidate of Sciences and works on his dissertation required for the degree of Candidate of Sciences. The Candidates requirements (Candidates examinations) are administered in dialectic and historical materialism, one foreign language, and in the field of specialization.

In a number of institutions of higher learning and scientific research institutes there is the so-called directed graduate training, which is one of the basic trainings for research and teaching manpower for institutions of higher learning, scientific and research institutes, agencies, state farms and other organizations of the Union Republics, ministries and departments not equipped to train scientific manpower. Institutions of higher learning also provide one-year long graduate program designed for teachers and for personnel of institutions of higher learning, technicums, teachers from higher schools providing general education (up to 45 years of age) who successfully pass their ~~required~~Candidate examinations and carried out their scientific and research work on the selected topic within the scope sufficient for a dissertation to be completed within one year. Tables 14 and 15 contain data on the numbers of

graduate students as of January 1 of each year. The numbers of graduate students do not include students in one-year graduate program. Graduate studies are considered to be completed when the students have passed their Candidates' examinations, defended their Candidate's dissertations or presented it for defense in the proper established manner (having presented their dissertations for defense the students are given an appropriate statement to that effect).

In Table 14 column "Total Number of Graduate Students" includes individuals who completed their graduate studies in the established period of time and defended their dissertations or presented them for defense, as well as individuals who have been released from their graduate student duties due to the expiration of the training period.

Table 15: DISTRIBUTION OF GRADUATE STUDENTS BY FIELDS OF LEARNING IN 1973. The names of the branches of science indicated are in complete agreement with the official USSR list of specialties of scientists established in the proper order.

Table 16: DISTRIBUTION OF RESEARCH AND TEACHING STAFF BY FIELDS OF SCIENCE. The category of scientists and science researchers includes academicians, active members and corresponding members of the Academy of Sciences of the USSR, of the Academies of Sciences of the Union Republics, and of the specialized academies; all individuals holding the degree of a Doctor of Sciences, Candidate of Sciences or the academic title of Professor, lecturer, senior scientist, junior scientist and assistant, regardless of the place and nature of employment; individuals doing scientific research in science institutions that involve an academic work and teaching in institutions of higher learning, regardless of their having or not having an academic title, as well as specialists in industry, in organizations doing planning, in planning, construction and technical organizations who have neither a degree nor an academic title but who are doing

research work according to research plans approved by a superior agency. The category of scientists and researchers does not include: technicians and laboratory assistants who are doing research work but do not have higher education; members of the auxiliary and scientific as well as scientific and technical staff (engineers, agronomists, physicians, economists, etc.) who are involved in carrying out certain duties in agricultural and other experiments but are not directly conducting scientific research work within the framework of the scientific program; graduate students and research interns, even if they have been given scientific and research projects, parts or stages of these projects. The numbers of research and academic personnel are listed by institutions doing research and teaching in certain branches of science or fields of knowledge grouped by the topics of research projects approved in the proper order and having sufficient finances for conducting scientific research and remunerating scientific personnel, and they are also listed by institutions of higher learning. The naming of the branches of sciences indicated is in complete agreement with the official USSR Nomenclature of the specialties of scientific personnel.

Table 17: AVERAGE ANNUAL NUMBERS OF BLUE AND WHITE COLLAR WORKERS, NUMBERS OF SPECIALISTS WITH HIGHER AND SPECIALIZED SECONDARY EDUCATION GROUPED BY BRANCHES OF NATIONAL ECONOMY. The concept "blue and white collar workers" includes all categories of workers in plants, institutions and organizations i.e. laborers, students, engineering, technical and agrozoo-technical workers, employees, junior auxiliary personnel and guards. In table 17 column "Average annual numbers of blue and white collar workers" contains data on the average numbers of employees on the staff. The average numbers on the lists of employees account for permanent employees of the plant, institution or organization including also

those employees who were absent due to illness or out on annual  
1 (regular) leave, women on maternity leave, etc. The category of  
2 specialists with a completed higher or specialized secondary  
3 education includes employees holding a diploma (certificate or  
4 certification) stating that they graduated from an institution  
5 of higher or specialized secondary learning or an equivalent  
6 institution, and are employed in plants, institutions, organizations  
7 and collective farms, regardless of the type of work they do or  
8 position they hold. Individuals who met the necessary theoretical  
9 course requirements at an institution of higher or specialized  
10 secondary education but did not defend a diploma project or did  
11 not pass their final examinations, are not included among the  
12 specialists with higher or specialized secondary education.

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Table 1 - DISTRIBUTION OF INSTITUTIONS OF HIGHER LEARNING  
GROUPED BY SPECIALIZATION  
(At the beginning of the academic year)

( 1970-71 )

Total number of schools 805

Broken down as follows:

Industry & Construction	201
Transportation & Communication	37
Agriculture	98
Economics and law	50
Health, physical education & sports	99
Education, including universities	268
Art and cinematography	52

Table 2 - NUMBERS OF STUDENTS IN INSTITUTIONS OF HIGHER LEARNING  
GROUPED BY TYPES OF SCHEDULES(At the beginning of the academic year,  
in thousands)

Years	Total No. of Students	<u>Broken Down as Follows:</u>		
		Daytime courses	Evening courses	Correspondence Courses
1972-73	4,630	2,386	636	1,608

Table 3 - ADMISSION TO INSTITUTIONS OF HIGHER LEARNING AND SPECIALIZED SECONDARY SCHOOLS BY TYPES OF SCHEDULES

	(In thousands)
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2	1973
3	Students admitted to institutions of higher learning 937.7
4	Broken down as follows:
5	Daytime courses 544.7
6	Evening courses 124.5
7	Correspondence courses 268.5
8	Students admitted to specialized secondary schools 1,356.7
9	Broken down as follows:
10	Daytime courses 864.2
11	Evening courses 149.4
12	Correspondence courses 343.1
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Table 4 - NUMBERS OF STUDENTS IN INSTITUTIONS OF HIGHER LEARNING  
GROUPED BY SPECIALIZATION1 (At the beginning of the academic  
2 year; in thousands)

3 1972-73

4 Total	4,630.2
Broken down by groups of specialization	
5 Geology and prospecting	38.5
6 Development of Mineral Deposits	56.2
7 Power Generation	106.1
8 Metallurgy	54.5
9 Machine Construction & Instrument Making	551.3
10 Electronic Technology, Construction of 11 electrical instruments & Automation	319.7
12 Radiotechnology and Communication	146.6
13 Chemical Technology	107.3
14 Forestry Engineering & Technology of 15 Wood, Pulp and Paper	23.2
16 Food Product Technology	73.3
17 Technology of Consumer Goods	56.6
18 Construction	325.6
19 Geodesics and Cartography	8.9
20 Hydrology & Meteorology	7.9
21 Agriculture and Forestry	375.5
22 Transportation	135.8
23 Economics	565.6
24 Law	84.8
25 Health & Physical Sciences	338.4
26 University Specialties	350.6
27 Specialties at Institutes of Education 28 and Institutions of Higher Learning and Culture	854.8
29 Art	39.6

Table 5 - SPECIALISTS GRADUATING FROM INSTITUTIONS OF HIGHER LEARNING  
Grouped by Specialization (In Thousands: 1973)

Total	692.3
1 Broken down by the Following Groups of Specialization	
2 Geology & Prospecting	5.7
3 Development of Mineral Deposits	8.2
4 Energy	13.2
5 Metallurgy	7.9
6 Construction of Machines & Instrument Making	74.3
7 Electronic Technology, Construction of Electrical Instruments	47.4
8 Radiotechnology & Communication	21.0
9 Chemical Technology	17.3
10 Forestry Engineering & Technology & Technology of Wood, Pulp & Paper	4.3
11 Food Products Technology	10.0
12 Technology of Consumer Goods	7.2
13 Construction	38.7
14 Geodesics & Cartography	1.3
15 Hydrology & Meteorology	1.2
16 Agriculture & Forestry	52.0
17 Transportation	16.8
18 Economics	84.8
19 Law	11.9
20 Health & Physical Sciences	53.2
21 University Specialties	53.9
22 Specialties at Institutes of Education and Institutions of Higher Learning & Culture	154.7
23 Art	7.3
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Table 6 - WOMEN STUDENTS IN INSTITUTIONS OF HIGHER LEARNING  
(At the Beginning of the Academic Year) 1973-74

1      Percentage of Women Among the Students at Institutions of  
2      Higher Learning - 50

3      Broken Down by Schools as Follows

4      Industry and Construction, Transportation and 5      Communication	39
6      Agriculture	32
7      Economics & Law	61
8      Health, Physical Education & Sports	56
9      Education, Art & Cinematography	68

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TABLE 7 - DISTRIBUTION OF STUDENTS IN INSTITUTIONS OF HIGHER LEARNING BY  
 NATIONALITY OF UNION AND AUTONOMOUS REPUBLICS AND AUTONOMOUS REGIONS  
 (At the Beginning of the Academic Year; in thousands) 1972-73

1 TOTAL - 4,630.2 - including the following nationalities:

2	Russian	2774.1
3	Ukrainian	618.8
4	Bellorussians	133.7
5	Uzbek	150.2
6	Kazaks	104.3
7	Georgians	86.4
8	Azerbaijanis	87.2
9	Lithuanians	51.8
10	Moldavians	30.3
11	Latvians	22.0
12	Kirghiz	27.3
13	Tadjiks	29.6
14	Armenians	80.0
15	Turkmens	22.2
16	Estonians	17.7
17	Abkhazians	1.9
18	Balkarians	1.8
19	Bashkirs	15.9
20	Buryats	12.3
21	Ingush	2.1
22	Kabardinians	5.9
23	Kalmyks	3.5
24	Karakalpaks	4.1
25	Kirlyians	1.7
26	Komi	4.8
27	Mari	5.1
28	Mordovians	12.0
29	Peoples of Daghestan	21.5
30	Ossets	13.0
31	Tatars	90.5
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TABLE 7 - Continued

	Tubians	1.6
1	Udmurts	7.4
2	Chechens	5.3
3	Chubash	17.3
4	Yakuts	.5
5	Adygeians	2.7
6	Altai	1.1
7	Jews	88.5
8	Karachai	2.9
9	Khakass	1.2
10	Cherkess	1.0
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TABLE 8 - DISTRIBUTION OF SPECIALIZED SECONDARY SCHOOLS BY GROUPS OF  
SPECIALIZATION (At the beginning of the Academic Year) 1970-71

Total number of schools - 4,223

1 Broken Down by Schools as Follows:

2	Industry & Construction	1420
3	Transportation & Communication	232
4	Agriculture	674
5	Economics & Law	349
6	Health, Physical Education & Sports	696
7	Education	543
8	Art & Cinematography	309

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TABLE 9 - NUMBERS OF STUDENTS IN SPECIALIZED SECONDARY SCHOOLS GROUPED BY TYPES OF SCHEDULES (At the Beginning of the Academic Year:  
in thousands)

	Years	
	<u>1972-73</u>	<u>1973-74</u>
Total Number of Students	4,438	4,448
Broken Down as Follows:		
Daytime Courses	2,690	2,275
Evening Courses	571	545
Correspondence Courses	1,177	1,178

TABLE 10 - NUMBERS OF STUDENTS IN SPECIALIZED SECONDARY SCHOOLS GROUPED BY  
SPECIALIZATION (At the Beginning of the Academic Year: in thousands)  
1972-73

1	Total - 4,437.9	
2	Broken Down by Groups of Specialties which are as follows:	
3	Geology & Prospecting	24.0
4	Development of Mineral Deposits	64.9
5	Power Generation	213.2
6	Metallurgy	48.5
7	Machine Construction & Instrument Making	553.4
8	Electronics Technology, Construction of Electrical Instruments	132.9
9	Radiotechnology & Communication	136.2
10	Chemical Technology	76.7
11	Forestry, Engineering & Technology of Wood, Pulp & Paper	47.1
12	Food Product Technology	160.7
13	Technology of Consumer Goods	108.9
14	Construction	409.8
15	Geodesics & Cartography	11.4
16	Hydrology & Meteorology	7.1
17	Agriculture	616.6
18	Transportation	280.3
19	Economics	629.6
20	Health & Physical Culture	432.4
21	Education	349.6
22	Art	129.4
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TABLE 11 - GRADUATES FROM SPECIALIZED SECONDARY SCHOOLS GROUPED BY  
SPECIALIZATION (In thousands) 1973

Total - 1,135.8

1 Broken Down by Groups of Specialties as follows:

2	Geology & Prospecting	5.5
3	Development of Mineral Deposits	14.1
4	Power Generation	49.5
5	Metallurgy	10.9
6	Machine Construction & Instrument Making	127.5
7	Electronic Technology, Construction of Electrical Instruments	31.8
8	Radiotechnology & Communications	30.0
9	Chemical Technology	20.2
10	Forestry, Engineering & Technology of Wood Pulp & Paper	10.8
11	Food Product Technology	37.1
12	Technology of Consumer Goods	23.9
13	Construction	87.9
14	Geodesics & Cartography	2.2
15	Hydrology & Meteorology	1.6
16	Agriculture	144.8
17	Transportation	60.9
18	Economics	208.7
19	Health & Physical Culture	140.3
20	Education	101.5
21	Art	25.2
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TABLE 12 - WOMEN STUDENTS IN SPECIALIZED SECONDARY SCHOOLS (At the Beginning  
of the Academic Year - Percentage: 53) 1973-74

1 Percentage of women among the students in specialized secondary schools,  
2 broken down as follows:

3	Industry & Construction, Transportation & Communication	40
4	Agriculture	36
5	Economics & Law	85
6	Health, Physical Education & Sports	88
7	Education, Art & Cinematography	81

16 No pg 27!

TABLE 13 - DISTRIBUTION OF STUDENTS IN SPECIALIZED SECONDARY SCHOOLS BY NATIONALITY OF UNION AND AUTONOMOUS REPUBLICS AND AUTONOMOUS REGIONS (At the Beginning of the Academic Year; in thousands)  
1972-73

1	Total - 4,437 (Including the following nationalities)	
2	Russians	2709.1
3	Ukrainians	669.1
4	Bellorusians	156.9
5	Uzbeks	99.5
6	Kažaks	79.6
7	Georgians	46.8
8	Azerbaijanis	57.1
9	Lithuanians	57.7
10	Moldavians	32.7
11	Latvians	19.6
12	Kirghiz	16.9
13	Tadjiks	19.3
14	Armenians	64.5
15	Turkmens	15.0
16	Estonians	15.1
17	Abkhazians	1.0
18	Balkarians	1.1
19	Bashkirs	18.3
20	Buryats	7.6
21	Ingush	1.7
22	Kabardinians	3.9
23	Klamyks	3.6
24	Karakalpaks	4.7
25	Kirlyians	2.5
26	Komi	8.7
27	Mari	7.8
28	Mordovians	16.9
29	Peoples of Daghestan	20.7
30	Ossets	7.8
31	Tatars	106.3
32		

TABLE 13 - Continued

1	Tubians	2.0
2	Udmurts	9.5
3	Chechens	6.7
4	Chubash	23.3
5	Yakuts	5.7
6	Adygeians	2.1
7	Altai	1.8
8	Jews	37.1
9	Karachai	1.4
10	Khakass	1.2
11	Cherkess	0.8
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## TABLE 14 - NUMBERS OF STUDENTS ATTENDING AND GRADUATING FROM GRADUATE SCHOOLS 1973

Total number of graduate students at the end of the academic year: 98,660

Broken down as follows:

1	Without being employed while studying	49702
2	While employed	49158
4	In Research Institutions (without institutions of higher learning)	41220
5	Without being employed while studying	15579
6	While employed	25641
7		
8	In Institutions of Higher Learning	57640
9	Without being employed while studying	34123
10	While employed	23517
11	Total Number of Students Graduating in a Year	25980
12	From Research Institutions (without institutions of higher learning)	10766
14	Without being employed while studying	5297
15	While employed	5369
16	From Institutions of Higher Learning	15214
17	Without being employed while studying	10781
18	While employed	4433
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TABLE 15 - DISTRIBUTION OF GRADUATE STUDENTS BY FIELDS OF LEARNING IN 1973  
(At the end of the Academic Year)

Number of Graduates - 98,860: Broken Down as Follows

		<u>Research Institutions (Without Institutions of Higher Learning)</u>	<u>Institutions of Higher Learning</u>
1		41,220	57,640
<u>FIELDS OF LEARNING</u>			
2	Physics & Mathematics	11,910	4,303
3	Chemistry	4,626	1,992
4	Biology	4,672	2,764
5	Geology & Mineralogy	2,163	1,257
6	Technology	40,470	18,204
7	Agriculture & Veterinary Science	5,676	3,554
8	History & Philosophy	5,559	1,311
9	Economics	10,599	4,022
10	Philology	2,792	535
11	Geography	775	336
12	Law	967	261
13	Education	2,241	798
14	Medicine & Pharmacology	4,961	1,274
15	Art	605	185
16	Architecture	480	283
17	Psychology et al	364	141
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## TABLE 16 - DISTRIBUTION OF RESEARCH &amp; TEACHING FACULTY BY FIELDS OF LEARNING - 1973

Numbers of Research &amp; Teaching Faculty - 1108.5

Broken Down by the Following Fields of Learning

1	Physich & Mathematics	111.0
2	Chemistry	51.9
3	Biology	43.5
4	Geology & Mineralogy	23.4
5	Technology	514.7
6	Agriculture & Veterinary Science	34.9
7	History	27.9
8	Economics	74.5
9	Philosophy	14.4
10	Philology	50.2
11	Geography	8.2
12	Law	5.8
13	Education	29.3
14	Medicine	55.2
15	Pharmacology	1.4
16	Art	13.7
17	Architecture	3.1
18	Psychology	2.5
19	Others	38.0
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TABLE 17 - AVERAGE ANNUAL NUMBERS OF BLUE & WHITE COLLAR WORKERS - NUMBER OF SPECIALISTS WITH HIGHER AND SPECIALIZED SECONDARY EDUCATION,  
GROUP BY BRANCHES OF NATIONAL ECONOMY (In Thousands)

	Average Annual No. of Blue & White Collar Workers	Total	Number of Specialists With Higher Education	With Specialized Secondary Education
5 Total	97,466	20,361	8,384	11,977
6 Broken Down as Follows				
7 Industrial Plants	32,875	4,722	1,387	3,335
9 Agriculture (Collective Farms, State Farms, Aux. 10 Agricultural Plants of MTS [Farm Equipment & Tractor 11 Stations] & 12 RTS [Repair & 13 Technical Sta- 14 tions])	9,885	1,195	362	833
15 Transportation Plants	8,705	773	183	590
17 Communication Plants	1,465	159	29	130
19 Construction Agencies: Drilling 20 Agencies: Project & Research 21 Organizations, Servicing & Construction		1,232	404	828
22		30	11	19
23	10,091	525	341	186
24 Agencies of Trade, Food, Material & Technical Supplies: Marketing & Purchasing	8,392	1,107	194	913
28 Agencies of Health, Physical Education & Social Welfare	5,522	2,678	678	2,000

TABLE 17 - Continued

	Average Annual No. of Blue & White Collar Workers	Number of Specialists		
		Total	With Higher Education	With Specialized Secondary Education
2	Agencies of Education & Culture	8,708	4,280	2,703
3				1,577
4	Agencies of Science & Science Services	3,735	1,760	1,204
5				556
6	Credit & Government Insurance Agencies	465	166	33
7				133
8	Bodies of State & Economic Government, Bodies Controlling Cooperative & Social Organiza- tions	2,008	1,218	667
9				552
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Attached to the foregoing tables were plans of study, issued by the Ministry of Higher and Secondary Specialized Education of the USSR.

The Institution of Higher Learning is Engineering & Technical - Specialty 1202: Called Industrial & Civil Construction. Course schedule shows the schedule for the entire year and the summary information on distribution of time in weeks. Lists all the course names, selective courses - a regular curriculum approved by the Ministry of Higher & Secondary Specialized Education of the USSR.

There is one for Specialty 1202, which is Industrial & Civil Construction.

It is a five year course of study and would qualify an individual to be a specialist in Building Engineering.

The second is from a state university and it would qualify someone to be a specialist as a Biology Instructor. That is also a five year course. The number of the speciality is 2019 - Biology.

Similar item: Large paper form approx. 12 x 16 inches. Has everything listed.

The third one is for a state university -- a five year course, and would qualify someone to be a physics instructor. Specialty 20-16. Subject of specialization is physics. It lists the course names -- such things as The History of the CPSU, Marxist-Leninist Philosophy, Political Economics, Scientific Communism, Basic Scientific Aethism, Foreign Language, Introduction to the Specialties, Psychology, Pedagogy, Methodology of Teaching Physics, Higher Mathematics, General Physics, Practical Training in Physics, Astronomy, Theoretical Physics, Solving Applied Problems with Computers, Basic Radio Electronics, Labor Protection, Soviet Law, Laboraotry for Courses of Specialization, Courses of Specialization, Physical Education.

Under Selective Courses they have: Marxist-Leninist Ethics, Marxist-Leninist Esthetics, Logic, Foreign Language, Physical Education, History of Physics, Philosophy of Contemporary Science, Basic Economics & Industrial Organization, Contemporary Chemistry & Biology, School Science, Education & Methodology, School Equipment, Physiology of Growth Hygiene, Lecturing Methodology and others.

Another document: an unreviewed draft translation, not dated. It is a listing of those disciplines taught thru correspondence courses at higher institutions of learning in the USSR under which students can be accepted who have either finished a special middle school or are working in a field they have chosen to study at the university.

Course Numbers: 0105 - Geophysical Methods of Prospecting or Searching For Mineral Deposits

- 25            0201 - Mine Surveying
- 26            0204 - Mineral Enrichment
- 27            0514 - Shipbuilding & Ship Repair
- 28            0524 - Ship Engines & Mechanical Devices
- 29            0525 - Ship Power Plants
- 30            0530 - Optical Devices & Spectroscopy
- 31            0535 - Aircraft Construction
- 32            0537 - Aircraft Engines
- 33            0604 - Semiconductors & Dielectrics
- 34            0606 - Automation & Telemechanics
- 35            0608 - Computers
- 36            0611 - Electronic Devices
- 37            0617 - Construction of Aircraft Equipment

36  
0621 - Technical Use of Aviation Equipment & Aircraft  
    Electrical Equipment  
0629 - Semiconductor Equipment  
0639 - Automation & Integrated Mechanization of Chemical  
    Technological Processes  
1    0642 - Informational Measurement Technology  
2    0701 - Radiotechnology  
3    0703 - Radio Communications & Transmissions  
4    0705 - The Design & Construction of Radio Equipment  
5    0706 - Technical Use of Aviation Radio Equipment  
6    0708 - Multichannel Electronic Communication  
7    0801 - Chemical Technology in Oil & Gas Refining  
8    0803 - Technology of Inorganic Substances in Chemical  
    Fertilizers  
9    0805 - Technology of Electrochemical Production  
10   0806 - Chemical Technology of Binding Material  
11   0807 - Technology of Basic Organic & Petrochemical Synthesis  
12   0810 - Chemical Technology of Plastics  
13   0811 - Chemical Technology of Laquers, Paints & Varnish  
    Paint Coatings  
14   0812 - Technology of Rubber  
15   0813 - Chemical Technology of Cinematographic film material  
16   0830 - Chemical Technology of Ceramics & Refractory Materials  
17   0831 - " " Glass & Metals  
18   0833 - " " Fibers  
19   0903 - " " Wood Materials  
20   0904 - " " Cellulose Paper Production  
21   1106 - Technology of Leather & Furs  
22   1301 - " Polymer Film Materials & Artificial Leather  
23   1301 - Engineering Geodesy  
24   1302 - Astronomical Geodesy  
25   1303 - Astronotogeodesy  
26   1304 - Cartography  
27   1501 - Agrochemistry & Soil Sciences  
28   1504 - Plant Protection  
29   1510 - Electrification of Agriculture  
30   1606 - Ship Navigation on Sea Lanes  
31   1607 - " Internal Waterways  
32   1610 - Aircraft & Engine Use  
33   1612 - The Use of Ship Power Plants  
34   1613 - " " Electrical Equipment  
35   2019 - Biology  
36   2103 - Foreign Languages  
37   2105 - Physics  
38   2106 - Biology  
39   2109 - Drafting & Drawing  
40   2110 - Pedagogy & Psychology (Pre-school)  
41   2111 - Defectology  
42   2114 - Physical Education  
43   2119 - Music & Singing  
44   2120 - General Technical Disciplines & Labor  
45   2201 - Piano (organ)  
46   2202 - Orchestral Instruments  
47   2203 - Folk Instruments  
48   2206 - Choir Direction  
49   2207 - Composition  
50   2209 - Dramatic Theater & Film Acting  
51   2211 - Drama Direction  
52   2215 - Camera Operation  
53   2220 - Graphics

Unreviewed draft translation - 32 pages. An Order of the Ministry of Higher & Secondary Specialized Education of the USSR - #647, dated 23 Aug 72.

Subject: Regarding the Nomenclature of Specializations of Scientific Workers

"The State Committee on Science & Technology of the USSR Council of Ministers by Decision #385 of 28 Jul 72 approved the nomenclature of specializations of scientific workers." Shows the numerical designation (resembles the Dewey Decimal System) for each specialization of scientific worker.

- 1 - Physical & Mathematical Sciences
  - 1.01 - Mathematics
    - 1.01.01 - Theory of Functions & Functional Analysis
    - 1.01.02 - Algebra & The Theory of Numbers
    - 1.01.04 - Geometry & Topology
  - 1.02 - Mechanics
  - 1.03 - Astronomy
  - 1.04 - Physics

2 - Chemical Sciences (w/all breakdowns)

3 - Molecular Biology

- 3.00.04 - Biochemistry
- 3.00.05 - Botany

4 - Geological & Mineralogical Sciences

5 - Technical Sciences

Page 7 to 21 are Technical Sciences. Go thru Chemical Engineering --

- 5.01.00 - Applied Geometry & Engineering Graphics
- 5.02 - Mechanical Engineering & Study of Machines
- 5.03 - Working Metals & Other Machine Building Material
- 5.04 - Power Metallurgical & Chemical Machine Building
- 5.05 - Transport & Mining Machine Construction
- 5.06 - Agricultural & Forest Technology Machine Building
- 5.07 - Aircraft Construction
- 5.08 - Ship building
- 5.09 - Electrical Machine Building & Electrical Equipment
- 5.10 - Electrical Apparatus Building
- 5.11 - Instrument Making Metrology & Information Measuring Systems
- 5.12 - Radio Engineering, Electronic Engineering & Communications
- 5.13 - Control, Automation & Computer Technology
- 5.13.01 - Technical Cybernetics & The Theory of Information
- 5.13.02 - Theory of Automatic Regulation & Control
- 5.15 - Mining Useful Minerals
- 5.16 - Metallurgy
- 5.17 - Chemical Technology
- 5.18 - Technology of Food Products
- 5.19 - Technology of Materials of the Textile & Light Industry
- 5.20 - Mechanization & Electrification of Processes of Agricultural Production
- 5.24 - Geodesy
- 5.25 - Scientific Technical Information
- 5.26 - Safety Engineering & Fire Prevention Techniques

6 - Agricultural Sciences

- 6.01 - Agronomy
- 6.02 - Animal Husbandry
- 6.03 - Forestry

7 - Historical Sciences

8 - Economic "

9 - Philosophical "

1 10 - Philological "

2 11 - Geographical "

3 12 - Jurisprudence

4 13 - Pedagogical "

5 14 - Medical "

6 15 - Pharmaceutical "

7 16 - Veterinary "

8 17 - Study of Art

9 18 - Architecture

10 19 - Psychological "

11 20 - Military "

12 21 - Naval "

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Reviewed draft translation. List of Specialties of Technical Schools & Colleges in the USSR and the Qualifications Given to People who Complete their Training in the Above Mentioned Specialties. Dated 1Jan 74. Gives name of specialty, form of training, qualification on graduation.

1 Group 1 - Geology & Exploration of Useful Mineral Deposits

2           Geology, Prospecting & Exploration for Useful Mineral Deposits

3           Form of training: Day, correspondence. Qualification on  
4           graduation: Technician in Geology

5 Listed in addition to Geology & Exploration of Useful Mineral Deposits -

6 Group 2 - Exploitation of Useful Mineral Deposits

7           3 - Power Engineering

8           4 - Metallurgy

9           5 - Machine Building & Instrument Building

10          6 - Electrical Machine Building & Instrument Building

11          7 - Radio Engineering & Communications

12          8 - Chemical Technology

13          9 - Wood Engineering & Technology of Wood Pulp Cellouse & Paper

14          10 - Technology of Food Products

15          11 - " Products in General Use

16          12 - Construction

17          13 - Geodessy & Cartography

18          14 - Hydrology & Meteorology

19          15 - Agriculture

20          16 - Transportation

21          17 - Economics

22          18 - Law

23          19 - Health Services & Physical Culture

24          20 - Education

25          21 - Art

42 page document. A list of majors & special courses in institutions of higher education of the USSR, dated Moscow 1972. By the Ministry of Higher & Secondary Professional Education of the USSR.

1 Gives the number of each subject, name, and the course. Somewhat a combination  
of last two documents.

2 Group 1 - Geology & Prospecting of Mineral Deposits

3 0101 - Geology & Prospecting of Mineral Deposits.

4 A Lists such things as Geology & Prospecting of Ore  
5 Bearing & Non-Ore Bearing Minerals

6 B Geology & Prospecting of Deposits of Rare & Radioactive  
Materials

7 C Shaft & Ore Geology

8 D Geology & Prospecting of Coal Deposits

9 E " " Peat "

10 F " " Mineral " of the Ocean Floor

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